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(54) MANUFACTURING METHOD OF POLYMER MATERIAL

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(58) Field of Classification Search

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(56) References Cited

U.S. PATENT DOCUMENTS

2015/0284508 A1*	10/2015	Ou C08G 63/914 525/437			
2017/0008826 A1*	1/2017	Essaddam C07C 29/095			
2017/0349744 A1*	12/2017	Chang C08L 67/025			
2022/0348715 A1*	11/2022	Peters C08G 63/85			
2023/0014630 A1*	1/2023	Lin C07C 69/82			
2023/0416183 A1*	12/2023	Bhaumik			
2024/0246897 A1*	7/2024	Cecchetto B01J 31/04			
2024/0287280 A1*	8/2024	Fufachev C07C 69/76			
2024/0409488 A1*	12/2024	Zheng C07C 29/80			
2025/0002676 A1*	1/2025	Barnicki C08J 11/24			
(Continued)					

FOREIGN PATENT DOCUMENTS

CN	107739434 A		 C08G 63/6926
CN	110078905 (Con	8/2019 tinued)	

OTHER PUBLICATIONS

CN-107739434-A English Machine Translation (Year: 2018).* "Office Action of Taiwan Counterpart Application", issued on Feb. 23, 2023, p. 1-p. 8.

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(57) ABSTRACT

A manufacturing method of a polymer material at least includes the following steps. A raw material including polyethylene terephthalate is provided. An alcoholysis reaction is performed by using the raw material with aliphatic diols to form an intermediate product, wherein the intermediate product includes bis 2-hydroxyethyl terephthalate. A polymerization reaction is performed by using the intermediate product and polytetramethylene ether glycol to form a thermoplastic polyester elastomer.

15 Claims, 1 Drawing Sheet

